Preparing a Paper for Publication

Julie A. Longo, Technical Writer
Sue Wainscott, STEM Librarian
Most engineers assume that one form of technical writing will be sufficient for all types of documents. This is absolutely not true.

This presentation will help you sharpen your technical writing skills so that you have a greater chance of your papers getting accepted to a journal or conference.
Most scientists regarded the new streamlined peer-review process as ‘quite an improvement.’
Steps in writing a technical paper

1. Know your audience
2. Organize your thoughts
3. Follow the journal’s style guide
4. Pay close attention to copyright and ethics issues
5. Refine your work
6. Converting your thesis or dissertation into a paper
7. Know when to stop writing
8. Grammar and punctuation errors common to engineers
Know your audience
• Knowing your audience is critical to writing a good technical document – or any written material, for that matter.

• If people think you do not understand who they are and what they are interested in, then:

• They simply won’t read your work.

Know your audience
The Writing Process

Who are you writing for?

• Peers in your specific field?
• Peers in your general field?
• Technical people not in your field?
• A non-engineering but professional audience?

Decide who is your primary audience.

Understand who are your secondary audiences.

Know your audience
Sometimes, the journal you plan to submit your paper offers hints as to your audience.
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**Aims & Scope**

The IEEE Computational Intelligence Magazine (CIM) publishes peer-reviewed articles that present emerging novel discoveries, important insights, or tutorial surveys in all areas of computational intelligence design and applications, in keeping with the Field of Interest of the IEEE Computational Intelligence Society (IEEE/CIS). Additionally, CIM serves as a media of communications between the governing body and its membership of IEEE/CIS. Authors are encouraged to submit papers on applications oriented developments, successful industrial implementations, design tools, technology reviews, computational intelligence education, and applied research.


**Frequency:** 4
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Standard Outline for a Technical Paper

Abstract
Introduction
Background or Literature Review
Methods and Materials
Data and Results
Discussion
Conclusion
Acknowledgements
References

Organize your thoughts
## Standard Outline for a Technical Paper

<table>
<thead>
<tr>
<th>Section</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abstract</strong></td>
<td>- The problem</td>
</tr>
<tr>
<td></td>
<td>- How the study addresses this problem</td>
</tr>
<tr>
<td></td>
<td>- Key results</td>
</tr>
<tr>
<td><strong>Introduction</strong></td>
<td>Write this last</td>
</tr>
<tr>
<td><strong>Background or Literature Review</strong></td>
<td>The most difficult part of the paper to write</td>
</tr>
<tr>
<td><strong>Methods and Materials</strong></td>
<td>Straightforward</td>
</tr>
<tr>
<td><strong>Data and Results</strong></td>
<td>Straightforward</td>
</tr>
<tr>
<td><strong>Discussion</strong></td>
<td>Your ideas on what the data means</td>
</tr>
<tr>
<td><strong>Conclusion</strong></td>
<td>- Summary of the findings</td>
</tr>
<tr>
<td></td>
<td>- Limitations of the study</td>
</tr>
<tr>
<td></td>
<td>- Recommendations</td>
</tr>
<tr>
<td><strong>Acknowledgements</strong></td>
<td>Especially grant sources</td>
</tr>
<tr>
<td><strong>References</strong></td>
<td>Pay special attention to the journal guidelines for references and citations</td>
</tr>
</tbody>
</table>

## Organize your thoughts
Use the resources of this university to help you with this step.

- Writing Center  
  http://writingcenter.unlv.edu/

- Online Writing Lab  
  http://writingcenter.unlv.edu/owl/

- Downloadable Writing Tips  
  http://writingcenter.unlv.edu/writing/downloads.html

- Purdue OWL  
  http://owl.english.purdue.edu/owl/resource/544/01/

- Upcoming workshop on *How to Search and Write a Literature Review*  
  • Presenters: Julie Longo & Sue Wainscott

Organize your thoughts
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Follow the journal’s style guide

You **must** check the style guidelines of the journal or conference paper.

- This is the first thing that the editors of the journal or conference will check – and **reject** if you don’t comply.

- Suggested strategy:
  - Find out and understand the style of that journal or proceedings.
  - Write your paper freely; don’t be overly concerned about the style at this point.
  - Once you have written and edited your paper, then format it according to style guidelines.
Every journal and conference has some kind of style guide they want you to follow.

The style guide includes:

- Font type and size
- Double space, single space, etc.
- The way headers should look
- Indent or spaced paragraphs
- Abstract word count
- Keywords? Highlights?
- Page length of paper
- How to submit artwork and tables

**Read the style guide for that publication very, very carefully.**

Follow the journal’s style guide
Sample style guides

IEEE Author Digital Toolbox
http://www.ieee.org/publications_standards/publications/authors/authors_journals.html

Elsevier journals: extensive author instructions
http://www.elsevier.com/authors/home and search for Guide for Authors for the journal you are interested in.

Springer’s Author Academy
http://www.springer.com/authors/author+academy?SGWID=0-1739713-0-0-0

ASCE Guide for Authors
http://www.asce.org/Content.aspx?id=18107

Follow the journal’s style guide
Author Academy: Now Featuring Interactive Courses!

Welcome to the Expanded Springer Author Academy, a guide from Springer and Edanz on writing and publishing.

Dozens of pages offer detailed advice on:

- How to publish a journal article
- How to prepare a book manuscript
- Peer Review and what it means to an Author

For those of you interested in more thorough study, we have now introduced courses including interactive features like quizzes and certificates.

Click below and on the right for an overview and links to the e-learning classes.

» Journal Author Academy
» Peer Review
» Book Author Academy

Videos with Chinese, Japanese or English subtitles

For those of you who prefer to listen to an instructor instead of reading we also provide videos (with Chinese and Japanese or English subtitles if you prefer).

Why is Publishing Your Work Important At All?

Before you begin, it may be useful to remind yourself of why publishing your work is important.

You might need to publish in order to graduate, get a job, or advance your career. But first take a moment to think about two of the most important aims of scientists:

- To add to the body of human knowledge
- To help yourself and others understand the nature of the universe

You can’t accomplish these goals without publishing! After all, the main way that others learn

Springer’s Author Academy
How to Write and Publish Your Scientific Paper

Peer Review and How to Deal With It

Springer’s Author Academy
ASCE publishes journal articles that demonstrate excellence in the quality of technical information and the clarity of expression. ASCE journal authors are expected to present their ideas in a manner that is logical, accurate, and as concise as possible. It is important that technical terms, notations, and symbols are defined and used with reasonable consistency.

This section of resources for ASCE journal authors presents a "virtual" author's guide, with information about submitting an article, the review process, preparing a final manuscript, and general ASCE policies. Information for journal editors and journal article reviewers is available elsewhere on this Web site. If you have questions about these or other issues, please consult an ASCE journals staff contact.

Submitting a Journal Article
- Submission guidelines
- Types of journal content
- Length of journal submissions
- Parts of a journal article
- Writing style
- Author-date references
- Obtaining permissions

Review Process
- Review Process and Decision Descriptions

Preparing a Final Manuscript
- Final submission of accepted papers
- Preparing tables for journal articles
- Preparing mathematics for journal articles
- Preparing figures for journal articles
- Quick guide to preparing figures
- Creating PDF figures
- LaTeX User Guide
- Publication process
Author Digital Tool Box

The IEEE Author Digital Toolbox contains tools and information to assist with article preparation and submission, the article proof review process, and ordering reprints. Also included is a list of frequently asked questions.

Preparing your article

- IEEE Style Manual (PDF, 132 KB)

- IEEE Abbreviations for IEEE Transactions, Journals, Letters, and Magazines (PDF, 728 KB)
  A catalog of IEEE's titles, including historic publications, along with their official reference abbreviations, and acronyms.

- Keywords Suggested for Authors (PDF, 326 KB)
  Authors are encouraged to select keywords from this list. It comprises the first three hierarchical "levels" under each term-family (or branch) that is formed from the top-most terms of the IEEE Thesaurus. If you cannot find appropriate terms, you may add your own.

- Article Templates
  Includes templates and instructions on how to prepare your papers for publication in IEEE Transactions and Journals.

- Refine the Use of English in Your Manuscript
  A professional editing service available for authors looking to refine and polish...
Create your own ‘style sheet’

• As you begin to write, keep track of terms you use so that you are consistent.

• Note when you first use an acronym.

• If the journal or proceedings does not have instructions for headers, captions, or tables, then create the format you plan to use in your own style sheet.

• A customized style sheet is especially valuable for creating reports to agencies – you can create a consistent and professional look to the documents you submit.

Following the journal’s style guide
You **must** cite material correctly and provide references according to journal style guidelines.

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You **must** cite material correctly and provide references according to journal style guidelines.

When gaining competency in correct citation and referencing:

- First of all, work with your faculty advisor
- Read the journal requirements
- Read the publishing agreement
- Proper citation for everything (text, photos, tables, graphics, etc.)
- Learn how to get permission to use figures, tables, etc., that already have been published
# How to Cite

Most journals have their own guidelines on how they want you to cite. The most common forms are:

<table>
<thead>
<tr>
<th>Style</th>
<th>Type of Citation</th>
<th>Most Commonly Used By…</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEEE</td>
<td>[numeral]</td>
<td>Electrical engineers, computer science</td>
</tr>
<tr>
<td>APA 6th Ed.</td>
<td>(Author, date)</td>
<td>Social sciences, civil engineering and mechanical engineering</td>
</tr>
<tr>
<td>Chicago Manual of Style #1</td>
<td>Bibliographic citations in footnotes or endnotes</td>
<td>Humanities</td>
</tr>
<tr>
<td>Chicago Manual of Style #2</td>
<td>(Author date)</td>
<td>Social sciences, physical sciences, ASCE journals</td>
</tr>
<tr>
<td>MLA</td>
<td>(Author page)</td>
<td>Liberal arts and humanities, Literature</td>
</tr>
</tbody>
</table>
How to Put Together a Reference List Correctly

- Make very sure your citations match your references

- Do not add any other material to your Reference List other than what you cite in the paper

- Follow the directions of the style manual used in your field – they give detailed information on the correct format.

- If you use a referencing software tool, make sure you check it for accuracy against the style manual
Plagiarism and Self-Plagiarism

Recognizing and Avoiding Plagiarism

Introduction

"Academic Integrity is expected of every Cornell Student in all academic undertakings. Integrity entails a firm adherence to a set of values, and the values most essential to an academic community are grounded on the concept of honesty with respect to the intellectual efforts of oneself and others."

- Cornell Code of Academic Integrity, p. 1

Plagiarism is the unacknowledged use of the words or ideas of others. It is the most common form of academic integrity violation at Cornell, comprising over 60% of all reported cases within the last three years. This web presentation will introduce you to Cornell's policy on plagiarism and review ways of avoiding common errors. First you will read about the principles linking plagiarism policy to Cornell's Academic Integrity Code. The logistics section will tell you how to document sources and avoid plagiarism. You will then go on to a series of exercises to test your understanding of how to use and cite sources correctly. If one of your instructors has asked you to complete this tutorial as part of a class assignment, you will be able to send the results of your exercises to a designated e-mail address.

Next >

https://plagiarism.arts.cornell.edu/tutorial/index.cfm
Ignore style guides at your peril

However -- don’t let the style guide hamper your writing style
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The importance of taking ethics in publishing seriously

... because the publishers take it seriously!

‒ Elsevier’s website on Ethics in Research and Publication
  http://www.elsevier.com/ethics/toolkit

‒ IEEE’s website on Author Rights and Responsibilities

‒ Springer’s website on Before You Start: Publishing ethics
  https://www.springer.com/gp/authors-editors/journal-author/journal-author-helpdesk/before-you-start
The importance of taking ethics in publishing seriously

... because the publishers take it seriously!
How seriously?

http://publicationethics.org/
COPE handles cases in:

- Duplicate publications
- Plagiarism, including self-plagiarism
- Data that was made up
- Authorship
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Refine Your Work

• After writing, put the document away for a couple of days.
• Print it out, and use a pen to mark your work up.
• Make a checklist and go through the paper several times for:
  • Flow of thought
  • In-text citations and references
  • Grammar and punctuation
  • Equations, figures, and tables
  • Conformance to the style guide
Specifically for Latex users

- The writing process has two phases:
  - **Phase I**
    - Original writing (raw)
    - Editing and refining
    - This phase is very fluid and changeable
    - Use some kind of format (MS Word, OpenOffice, text) that allows for easy revisions
  - **Phase II**
    - Formatting for publication
    - The material is finalized
    - The style is rigid
    - Do not put material into Latex until it is finalized, especially if you plan to work with a technical editor during Phase I
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Converting a thesis or dissertation into a paper

• In a thesis or dissertation, you have to include information that ensures your board of reviewers understand that you know your subject.

• This information is extraneous and largely unnecessary for experienced readers of journals.

• When converting a thesis to a paper, think carefully about who your new audience is, and edit accordingly.

• Avoid giving a tutorial.
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• An Editor-in-Chief once told me that it could take a lifetime to learn the art of knowing when to stop writing.

• There is a point in your writing – or editing – where you must stop or risk having your material degenerate.

• If there is too much information thrown into a paper – then, perhaps you need to write two or three separate papers...

Know when to STOP
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Errors common to engineers...

At the Tomb of the Unknown Grammarian

Image Source Page: http://jeffreyhill.typepad.com/a/6a00d8341d417153ef01310f66dd21970c-800wi

Grammar and Punctuation Basics
Acronyms

• You **must** write out an acronym the first time you use it in the body of the paper.

• Write the term first and then put the acronym in parentheses.

• Also, write out the acronym in the abstract. However, you also must write it out again when first used in the body of the paper.
APA Style for numbers

• Words for 1-9 and numerals for 10 and above
• Use numerals for:
  - Units of time (except if approximate)
  - Dates
  - Ages
  - Numbers as part of series
  - SI units
IEEE Style for Math

- Variables are set in italic; vectors and matrices are usually boldface italic.
- Remove commas around variables in text.
- Always add a zero before decimals, but do not add after (e.g., 0.25).
- Spell out units in text without quantities (e.g., where the noise is given in decibels).
- Numbers and units used as compound adjectives should be hyphenated only if needed for clarity (e.g., 10-kV voltage; 5-in-thick glass).
- Use thin spaces (instead of a comma) between numbers in tens or hundreds of thousands (e.g., 60 000, 100 000, but 4000).
- Use zeroth, first, nth, (k+1)th, not 0th, 1st, 2nd, 99th, n th , (k + 1)st.
- Use the word “equation” at the start of a sentence only, but in text just use the number [e.g., in (1)], unless describing an equation, e.g., see “Darlington equation (1).”
- The slash is used in place of the word “per” when it leads to the clarity of the sentence (e.g., the ratio of 16 samples/s to 35 samples/s as compared to...).
- Use “indices” instead of “indexes” when referring to subscripts.
- Plural variables have an “s”.
Colons and Semi-colons

• This is a very common issue with engineering documents.

• Because most papers and proposals include difficult concepts and equations, it is very important to use commas and semicolons correctly in order to help the reader.

• Avoid the overuse of parentheses – again, this will cause ‘brain freeze’ in deciphering a lengthy and difficult sentence.

• After you have written your paper, read it as if you were the audience and try to break up the longer, more difficult sentences and paragraphs.
**Hyphens**

• If a noun is the object of the sentence, then the modifier before it is not hyphenated:

  The diameter of the glass tube was 10 mm.

• If the noun is part of a modifying phrase, then hyphenate:

  The glass tube had a 10-mm diameter.
i.e. and e.g.

• Engineering writing is very complex and hard to follow.

• In Latin:
  • ‘i.e.’ means ‘that is’
  • ‘e.g.’ means ‘for example.’

• It will be easier on the reader if you simply use the English words instead of the Latin acronyms.
That and Which

• “That” is used with restrictive phrases – phrases that are essential to the sentence.

• “Which” is used with nonrestrictive phrases – phrases that are not essential to the sentence.

• When you use ‘which,’ a comma precedes it.
Different and Various

• ‘Different’ is best used in the context of two dissimilar items:

  Two entirely different methods were used to analyze the process.

• ‘Various’ is best used to describe the use of several types of items, some similar, some not so similar.

  Various studies in the literature alluded to this issue.
Please try to avoid:

Long, long sentences

• Rule of thumb: read it aloud, and if you have to take a breath to finish it, it is too long.

• Try to break up long sentences – your readers will thank you.

Long, long paragraphs

• One paragraph for one thought idea.

• If your paragraphs are too long, a key idea might be missed.

• Also, your readers give up trying to it.
Build-A-Phrase
Sometimes, you can have one too many nouns modifying an object, confusing the reader.

<table>
<thead>
<tr>
<th>Category 1</th>
<th>Category 2</th>
<th>Category 3</th>
<th>Object</th>
</tr>
</thead>
<tbody>
<tr>
<td>power</td>
<td>delay</td>
<td>profile</td>
<td>distribution</td>
</tr>
<tr>
<td>sampling</td>
<td>frame</td>
<td>identification</td>
<td>technique</td>
</tr>
<tr>
<td>local</td>
<td>Binary</td>
<td>Pattern</td>
<td>Operator</td>
</tr>
<tr>
<td>discrete</td>
<td>time-lumped</td>
<td>parameter</td>
<td>model</td>
</tr>
<tr>
<td>wideband</td>
<td>direct</td>
<td>sequence</td>
<td>model</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>measurements</td>
</tr>
<tr>
<td>data</td>
<td>analysis</td>
<td>evaluation</td>
<td>mechanism</td>
</tr>
<tr>
<td>cost</td>
<td>estimation</td>
<td>probability</td>
<td>model</td>
</tr>
<tr>
<td>modified</td>
<td>full-scale</td>
<td>real-time</td>
<td>requirements</td>
</tr>
<tr>
<td>proposed</td>
<td>controlled</td>
<td>online</td>
<td>study</td>
</tr>
<tr>
<td>sustainable</td>
<td>variable</td>
<td>alternative</td>
<td>process</td>
</tr>
<tr>
<td>traditional</td>
<td>operational</td>
<td>derived</td>
<td>framework</td>
</tr>
<tr>
<td>potential</td>
<td>optimized</td>
<td>distribution</td>
<td>criteria</td>
</tr>
<tr>
<td>effective</td>
<td>dual</td>
<td>threshold</td>
<td>formation</td>
</tr>
<tr>
<td>relevant</td>
<td>intensive</td>
<td>testing</td>
<td>capabilities</td>
</tr>
</tbody>
</table>
In Conclusion

• Technical writing for papers, reports, and proposals take as much care as your actual research

• Keep your reader in mind at all times

• Comply with the journal style guidelines

• Editing and refining your writing is a key part of the process
Next workshops

**Citations, References, and Referencing Tools**
February 26, 2016 / 9:30 – 11:30 AM / Lied Library
How to correctly cite and build a reference list; how NOT to plagiarize and how to paraphrase; several software tools you can use for building your reference list.

**How to Prepare a Technical Report**
March 18, 2016 / 9 AM to 11:30 AM / SEB 1243
Most grants from state or federal agencies require submission of periodic and final technical reports. This workshop will cover the steps in preparing a quality technical report.

**Literature Review for Engineers**
April 8, 2016 / 9 AM to 12 noon / SEB 1243
This workshop has two segments. The first segment will cover:
- How to design a strategic plan to ensure your literature review is complete and efficient.
- How to organize the output of your literature search in order to objectively evaluate and select your final list.
- How to design evaluation criteria specific to your research question.

The second segment will cover:
- The three levels of writing a literature review.
- How to write a literature review at Level 1.
- What writing a Level 2 literature review entails.
The Technical Writing Intensive
April 17, 2015  /  9 AM to 12 noon  /  SEB 1243

By invitation only for anyone who attended:
• Preparing a Paper for Publication
• Preparing a Technical Report
• Literature Review

Bring your papers, theses, dissertations, reports, or other writing projects to work on in this intensive.
Thank you for your attention!